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Cir. 37a.
3,000, Aug., 1908.



Minimum Equipment for Fifth Classes.

LIBRARY. (Minimum Value, \$50.00).

I. *For Reference :*

Concise Imperial Dictionary (Half Morocco).....	\$1.50
Chambers' Biographical Dictionary.....	3.50
Nature's Garden. Blanchan	2.00
Botany (12th Edition, 1907). Bailey	1.10
Our Native Trees. Keeler	2.00
First Book of Forestry. Roth.....	.75
Soil. King	1.25
Public School Agriculture .....	.30
Animal Life. Jordan and Kellogg	1.25
Insect Life. Comstock.....	1.50
The Birds of Village and Field. Merriam	2.00
Birds of Ontario. Nash. (Issued by Ontario Department of Agriculture, Toronto.)	
Art Education ; for High Schools. The Prang Educational Company	

II. *For General Reading :*

Life of King Alfred. Besant	1.25
Sir Walter Raleigh. (Builders of Greater Britain. Wilson)	1.50
Champlain. Dix	1.00
Oliver Cromwell. (Historical Biographies. Creighton) ..	1.00
James Watt. Carnegie.....	.50
Abraham Lincoln. Brooks	1.00
Livingstone. (English Men of Action) .....	.75
Heroes of the Crusades. Douglas	1.50
Heroes of Canada. Marquis	1.00
Noble Women. Adams .....	.75
Tales of Chivalry. Rolfe .....	.50
Stories of the Days of King Arthur. Hanson .....	.90
A Little Book of Profitable Tales. Field.....	1.25
Pathfinders of the West. Laut.....	2.00
Stories of Discovery. Hale.....	1.25
North Overland with Franklin. Oxley.....	1.00
Old Indian Legends. Zitkala-Sa .....	.50
The Jungle Book. Kipling	1.50
The Red True Story Book. Lang.....	.45
The Sea and Its Wonders. Kirby	1.00
Following the Deer. Long.....	1.25
Camp Life in the Woods. Gibson.....	1.00

III. *For Special and Supplementary Reading* :\$10.00

- (a) Shakespeare :—(1) Merchant of Venice ; (2) Julius Cæsar ;
(3) As You Like It ; (4) Macbeth ; (5) Richard II ;
(6) Henry V ; (7) Cædric.
- (b) Narrative Poetry :—(1) The Ancient Mariner. Coleridge.
(2) Lay of the Last Minstrel. Scott. (3) Lays of
Ancient Rome. Macaulay. (4) Tales of a Wayside
Inn (Selections). Longfellow. (5) Snowbound. Whit-
tier. (6) The Earthly Paradise (Stories and Legends).
Morris.
- (c) Prose Fiction :—(1) Silas Marner. Eliot. (2) Ivanhoe. Scott.
(3) Treasure Island. Stevenson. (4) Tale of Two
Cities. Dickens. (5) The White Company. Doyle.
(6) Burning of Rome. Church.
- (d) Miscellaneous :—(1) Wake Robin. Burroughs. (2) Sketch
Book (Selections). Irving. (3) Twice Told Tales
(Selections). Hawthorne. (4) Greek Heroes. Kingsley.
(5) Warren Hastings. Macaulay. (6) Captains of
Industry. Parton.

NOTE :—In each year the pupils should read, partly at home or during study periods and partly in class, three or four books specially prescribed by the Principal or the Inspector. If possible each pupil should be supplied with a separate copy of each book so selected. An allowance of ten dollars will meet the cost of such reading for the average Fifth Class. The books should be arranged under different headings, providing a suitable literary range, such as narrative Poetry, Drama, History and Biography, Prose Fiction, Travels, Essays, Popular Science, Miscellaneous, etc.

The books specified in the foregoing lists are suggested simply for the convenience of Inspectors, Principals and School Boards. Other lists more suitable to the conditions of individual schools and classes may be selected by these authorities from the authorized School Library Catalogues issued by the Education Department. In all cases special attention should be paid to quality of paper and type.

Teachers may obtain free of cost for their schools the bulletins of the Dominion Government on Forestry by applying to the Forestry Branch, Department of Interior, Ottawa ; and of the Ontario Agricultural College, Guelph, by applying to the Department of Agriculture, Toronto.

DRAWING AND ART SUPPLIES. (Minimum value, \$15.00.)

- I. About a dozen of the standard models, of good size, including such forms as sphere, half sphere, cylinder, cube, cone, frustum, prism, pyramid, flight of three steps, vases, etc.
- II. Sheets of drawing paper, 9 in. x 12 in., suitable for work with pencil, brush, or pen : \$2.50 to \$3.00 per 1,000 sheets.
- III. A box of water colors for each pupil, including the three standard colors,—yellow, red, blue,—and a tube each of Chinese white and sepia, also at least two brushes for each box, costing about 50c per box for good material.

NOTE.—Total supplies for average Fifth Class need not exceed \$15.00 for excellent quality of material, and only such quality will meet the requirements of the prescribed course.

MAPS, CHARTS, ETC. (Minimum value, \$15.00.)

- Map of Roman Empire, Kiepert. (75 in. x 57 in.) \$6.40
- Map of Roman Empire. W. & A. K. Johnston. (51 in. x 43 in.) 3.50

Map of Ancient Italy. W. & A. K. Johnston	3.50
Map of Ancient Greece. " "	3.50
Physical Map of the World. " "	3.50
Botany Charts. (Set of four). " " (34 in. x 28 in.)	6.75
Birds of Canada in Relation to Agriculture. Humberstone.....	3.00
Natural History Charts. Wheeler. Four charts each.	4.50
(1) Mammalia. (2) Birds. (3) Reptiles, Amphibians and Fishes. (4) Invertebrate Animals.	
Lang's Planetarium	15.00

LIST OF APPARATUS.

1 Metric Scale, one foot long. The ordinary school rulers graduated in inches, and centimeters will answer.....	.05
1 Meter Stick.....	.50
1 Pinch-cock .....	.15
1 Burette, Mohr's, 50 C. C. graduated in tenths	1.50
1 Measuring Cylinder, 100 C. C. graduated .....	.80
3 Beakers, different sizes.....	.55
1 Air Pump and Receiver.....	15.00
1 Physical Balance, with set of Metric Weights.....	10.00
2 Spirit Lamps or Bunsen Burners.....	.80
1 Spring Balance.....	.80
1 Glass Battery Jar, 9 in. deep, 8 in. diameter .....	.50
1 Mortar and Pestle.....	.35
2 Thistle Tubes, each 15.....	.30
1 Barometer Tube, heavy glass.....	.50
1 Boyle's Law Tube.....	1.00
1 Filter Funnel .....	.10
1 Retort Stand, (two rings).....	.50
3 Florence Flasks with perforated rubber corks to fit .....	.75
1 Florence Flask with wide mouth .....	.25
1 Rubber Cork with two holes to fit Florence Flask with large mouth .....	.15
1 Hydrometer Jar.....	.45
1 Tuning Fork.....	1.25
1 Deflagating Spoon.....	.15
1 Evaporating Dish.....	.25
1 Glass Tube about 2 cm. in diam. and 30 cm. long .....	.15
1 Glass Tube about 3 cm. in diam. and 50 cm. long .....	.30
1 Spool Piano Wire.....	.10
2 Thermometers, graduated in both Centigrade and Fahrenheit Degrees	1.50
1 Plane Mirror, (small) .....	.25
1 Convex Lens, (Reading Glass will answer).....	.25
2 Triangular Glass Prisms	1.00
Pieces of Red, Green, and Blue Glass.....	.10
Lodestone, (small piece).....	.50
2 Bar Magnets.....	.50
1 Compass.....	.25
1 Bar Soft Iron, round, 6 in. long.....	.20
Sheet Zinc and Sheet Copper, (pair elements).....	.15
2 Dry Cells, (each 50c.)	1.00
1 Spool Double-Covered Magnet Wire, No. 20, to be used for making Electro-Magnets, etc.....	.30

1 Pneumatic Trough.....	.40
6 Clear Glass Bottles.....	.30
4 Glass Slips, 2 inches square to cover mouth of bottles.....	.05
3 Soup Plates.....	.20
3 Hard Glass Test Tubes.....	.30
4 Reagent Bottles, 4 oz.....	.50
1 doz. Test Tubes, 5 in. x $\frac{3}{4}$ in, per doz.....	.25
2 doz. Test Tubes, 4 in. x $\frac{1}{2}$ in, per doz.....	.30
1 lb. Glass Tubing, (soft) $\frac{1}{8}$ in. to $\frac{1}{4}$ in.....	.60
1 Retort, stoppered, 4 oz.....	.25
1 Lamp Chimney, (large).....	.10
2 yards Rubber Tubing, $\frac{3}{16}$ in. inside, red.....	.60
Pieces of Mica.....	.10
1 Package of Picture Wire.....	.10
2 Files, one round, one triangular.....	.15
2 doz. Corks, assorted.....	.10
1 Package Filtering Paper, circles, 6 in.....	.25
Candles.....	.10
$\frac{1}{2}$ doz. Sheets Litmus Paper.....	.30
1 square foot Sheet Rubber, per square foot.....	.25
Wire Gauze.....	.15
1 Concave Lens.....	.20
1 piece Plate Glass for proving laws of refraction.....	.30
1 Round-bottomed Flask.....	.30
Sealing Wax, large stick.....	.25
1 Small Vise for clamping wires.....	.40

\$50.00

CHEMICALS.

The following chemicals are also requisite. They will cost about \$6.

Zinc, granulated, 1 lb.
 Copper Clippings, sheet or wire, 1 lb.
 Iron Filings, 1 lb.
 Charcoal.
 Coal, (pieces of hard and soft).
 Mercury, 2 lbs.
 Sodium, 1 oz.
 Potassium, 2 drams.
 Oxide of Mercury, red, 1 oz.
 Oxide of Copper, 1 oz.
 Manganese Dioxide, $\frac{1}{2}$ lb.
 Calcic Oxide, (lime, lumps).
 Sodid Hydroxide, $\frac{1}{4}$ lb.
 Potassic Chlorate, 1 lb.
 Potassic Nitrate, 4 oz.
 Potassic Permanganate, 2 oz.
 Calcic Chloride, (lumps).
 Ammonia Solution, 8 oz.
 Ammonia Nitrate, 4 oz.
 Ammonia Chloride, 6 oz.
 Calcic Carbonate, lumps of limestone, calcite, chalk, animal shells
 Carbon, specimens of coal, charcoal, graphite, lampblack.

Sulphuric Acid, 1 lb.
Nitric Acid, 1 lb.
Hydrochloric Acid, 8 oz.
Yellow Phosphorous, 1 oz.
Magnesium Wire.
Silver Nitrate.

NOTE:—The foregoing is suggested as a suitable list from which to select the minimum equipment, but School Boards are not restricted to this list. The biological charts should be used only as *auxiliary* in the practical and objective treatment of the prescribed course in plant and animal study.
